Space Weather Forecast

Issued on Tuesday, 16 July 2024 at 01:27 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Moderate-class X-ray flares likely (R1-R2 radio blackouts).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Moderate, with a triple-peak moderate flare at 15/0937 UTC originating from the large region in the southwest, this sunspot accompanies 15 other spots on the disk, but is by far the largest and most complex region. The next largest region is in the southeast, this spot continues to develop in size and complexity. There are two small and unstable spots near centre disk which also pose a threat of flaring. All other regions are considered to be relatively small and simple at present.

Despite the number and scale of solar flares, no Earth-directed coronal mass ejections have been observed.

Solar Wind / Geomagnetic Activity: The solar wind signal comprised variations on a slow regime, with a late enhancement noted. The solar wind speed was at background levels but rose a little to end the period. The interplanetary magnetic field was weak, becoming moderate from 15/2150UTC. The north-south variation was also weak initially, becoming consistently negative and moderate after 15/2200 UTC. The net result of the above solar wind measures was Quiet (Kp 1), until the final period where the provisional result was Unsettled (Kp 3).

Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Further Moderate-class flares are likely, with a slight chance of further Strong-class flares, most likely from the most complex region. This risk abates slightly after midweek with the main sunspot group leaving the facing side of the Sun.

Solar Wind /Geomagnetic Activity: No Earth-directed coronal mass ejections feature in the forecast. A recent minor enhancement has been noted. The only other potential enhancement currently possible is that of a very uncertain coronal hole high speed stream later in the period, otherwise, solar winds should remain background. Geomagnetic activity is expected to be mostly Quiet, with a slight chance of G1/Minor storms early day 1 (16 Jul) due to the ongoing weak enhancement. Quiet conditions should then prevail, with a chance of Unsettled or Active spells and a slight chance of G1/Minor storms days 3 and 4 (18-19 Jul).

Energetic Particles / Solar Radiation: No solar radiation storms are expected, with a slight chance of rising in response to any notable flares, mainly from the large off-going sunspot.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

Met Office

Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	1	10	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	70	70	60	60
Very Active	R3 to R5 X	No	10	10	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	15	15	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.